SYLLABUS

Physics 311
Mechanics
Spring, 2002

Instructor: Prof. Andrey V. Chubukov
Second Instructor: Dr. Jia-Ling Lin

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Office hours 4:30p.m - 6p.m MW
Phone 263-3919

V. Barger and M. Olsson, Classical mechanics - a modern perspective, McGraw-
Recommended text: K. Symon Mechanics, Addison-Wesley, 1971. Textbooks are
available for purchase in the University Bookstore and should be on reserve at the
Physics Library.

Tentative Schedule of Topics

1/22-1/31  Introduction. The principle of least action. The equations of motion. LANDAU §§ 1-5

2/3-2/7  Conservation laws. Energy, momentum and angular momentum conservation. LANDAU §§ 6-9

2/10-2/21  Integration of the equations of motion. LANDAU §§ 11, 13-15
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>2/24</td>
<td>Mid-term exam</td>
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<tr>
<td>3/24-4/16</td>
<td>Motion of a rigid body. Angular velocity. The inertia tensor. The equations of motion of a rigid body. Euler angles. LANDAU §§ 31-37</td>
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<tr>
<td>4/21</td>
<td>Mid-term exam</td>
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<td>5/12-5/16</td>
<td>FINAL EXAM</td>
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Three credit students

1. **Exams.** Each three-credit student will take a total of three exams (including the final exam). Each mid-term exam will have 3 questions, final exam will have 5 questions. Exam dates are listed on the Schedule of Topics. The dates are tentative and are subject to change. Exams will cover the assigned lectures. Approximately 2/3 of the questions will be drawn from the textbooks, others will be drawn from lectures.

2. **Problem Sets.** There will be 4 problem sets, each set will have 6-10 problems and will be due in two weeks.

3. **Grades** Each solution will be graded on the conventional (A-F) grading system. Valid grades are A -5 points, AB - 4 points, B - 3 points, BC - 2 points, C - 1 points D - 0.5 points, and F -0 points. The total grades for mid-term exams will be based on the following scheme: A - 15-13 points, AB - 12-11 points, B - 10-9 points, BC - 8-7 points, C - below 7 points. For the final exam, the total grades will be as follows A - 25-21 points, AB - 20-18 points, B - 17-15 points, BC - 14-12 points, C - below 12 points. The final grade for the course will be based on the mid-term exams (30% each), and on the final exam (40%). Besides, to get A or AB, one should present solutions for all four home sets and collect more than 66% of the maximum total number of points graded on the same system. To get B, one should collect more than 50% of the maximum total number of
points.

4. Class attendance is required.